Washington State On-Site Wastewater Rule Development Committee

April 24, 2003

SeaTac Occupational Skills Center
18010 8th Avenue South
SeaTac, Washington
(Meeting # 10 notes)

Representation	*Members / Alternates*	*2/13*	*3/28*	*5/22*	*7/17*	*9/19*	*10/24*	*12/12*	*1/23*	*3/13*	*4/24*	*5/6*	*6/18*
WA Assoc of Realtors	**Slough, Frederick**	+	+	+	+		+			+	+		
	Stout, Larry		+										
Building Industry of WA	**Stanton E.C.**	+	+	+		+		+		+			
	Kunkel, Jenn (T. Neal)	+		+	+	+	+	+	+	+	+		
On-Site Wastewater Designer	**Wecke,r, Steve**	+	+	+	+	+		+	+	+	+		
	Lombardi, Pete	+					+	+		+			
On-Site Wastewater Installer	**Stuth, Jr., Bill**	+	+	+	+	+	+	+	+	+	+		
	Stonebridge, Jerry	+											
Certified Proprietary Device Specialist	**Garrison, Carl**	+	+	+	+	+	+	+	+	+	+		
	Morris, Mike												
OSS Pumper/O&M Specialist	**Tacia, Reed**	+	+	+	+	+	+	+	+	+	+		
	Markle, Steve	+	+			+	+	+	+	+	+		
Proprietary Products At-Large	**Patterson, Jim**	+	+	+		+	+	+	+	+	+		
Planning WA Assoc of Counties	**Shuttleworth, Mike**		+	+	+	+	+		+	+			
Local Health Jurisdictions (Westside-Urban)	**Deeter, Jerry**	+	+	+	+	+	+	+	+	+	+		
	Starry, Art	+			+		+		+				
Local Health Jurisdictions (Westside-Rural)	**Higman, Keith**		+				+	+		+			
	Fay, Larry	+			+		+	+					
Local Health Jurisdictions (Eastside-Urban)	**Perkins, Bruce**		+	+					+	+	+		
	Dawson, Rick	+	+	+	+	+	+		+	+	+		
Local Health Jurisdictions (Eastside-Rural)	**Barry, Kevin**	+	+	+	+	+	+		+	+	+		
	Wolpers, John												
Soil Scientist	**Cogger, Craig**						+	+	+	+			
	Hermann, C			+									
Puget Sound Water Quality Action Team	**Hull, Terry**	+	+	+	+	+	+	+	+	+	+		
Indian Health Services	**Dalton, Robin**	+	+	+	+	+							
WA Shellfish Industry	**Dewey, Bill**			+	+	+	+		+	+	+		
	Taylor, Bill					+		+					
WA Dept of Ecology	**Kimsey, Melanie**		+		+	+	+		+		+		
	Shaleen-Hansen, Mary	+					+						
WA Assoc of Water & Sewer Dist	**Hart, James**		+	+		+							
	Wiggins, Margaret	+	+							+	+		
Consumer	**Smith, Denise**	+	+	+	+	+	+		+		+		
	Salkind, Mark	+	+	+		+	+	+	+	+	+		
WA Dept of Health	**Soltman, Mark**	+	+	+	+	+	+	+	+	+	+		
People for Puget Sound	**Wishart, Bruce**												
WA Public Utilities Districts	**Kukuk, Ken**												
	Robertson, Robbie												
Professional Engineer	**Yuhl, Mike**	+	+	+		+	+	+		+	+		
Tribal Government	**McMurtrie, Doug**	+	+	+	+	+	+		+	+	+		

+ Present at meeting, ***Members*** *Alternates*

Onsite Rule Development Committee Meeting
April 24, 2003

SeaTac Occupational Skills Center
18010 8th Avenue South
SeaTac, Washington 98148
(206) 433-2525

Time	Agenda Item	Outcome	Lead
10:00	Welcome		Maryanne Guichard
10:10	Agenda/ Review March 13 notes		Eric Svaren
10:15	Language committee report An issue from the language committee – cut banks.	Discussion	Kelly Cooper Carl Garrison
10:30	Report from the TRC • Treatment Levels	Discussion/ Decision	Dave Lenning
12:15	Lunch		
12:45	Continuation of the report from the TRC		Dave Lenning
2:00	Miscellaneous topics: • Title/notification • Local management oversight • Final Language Revision Process		Kelly Cooper Eric Svaren
2:50	Wrap-up		Eric Svaren
3:00	Adjourn		

ONSITE SEPTIC SYSTEM
RULE DEVELOPMENT COMMITTEE NOTES
Meeting 10
24 April 2003

(Notes from flip charts)	(Staff notes)
Housekeeping March 13 notes OK	Maryanne Guichard introduced the meeting and informed the RDC that she and others will be briefing the State Board of Health on the progress of the RDC on May 14, 2003.
Language committee report	The language committee met on April 16. They identified cut banks as a policy issue needing to come before the RDC.
Treatment Levels - Allow add-on disinfection? - Remove standards that require disinfection (bacterial reduction) - Allow prop. Manufacturers a grace period	Report from the TRC Dave Lenning briefed the RDC and distributed a handout "TRC Recommendations: Treatment Levels" (This is included at the end of the notes.) Much discussion followed and staff was directed to develop ideas further for the May meeting.
Proposal One last call for policy issues On form – one page Submit by 4/30 Ranking due 5/6 (Rank by risk) 1) Public Health Risk 2) 3) Allow 2 hour total at 5/6 or 6/18 meetings to discuss. (Adopted)	Kelly Cooper gave an update on the following issues: • Title/notification • Local management oversight • Final language revision process

Meeting evaluation:

Worked well Could be improved

- Engagement on everything

- TRC's hard work
- Treatment standards – big thing to hit us with late in process
- Give pre-reading assignments – several URLs
- Longer days – not getting into monitoring & maintenance

Future meetings:

- May 6, 2003
- June 18, 2003

TRC Recommendations: TREATMENT LEVELS
Report to RDC
April 24, 2003

1. Information sources: Rule Development Committee Issue Research Reports on "Application of Treatment Standard 1 & 2" and "Type 1 Soil Issues" developed by John Eliasson, DOH staff; 2002 USEPA Onsite Manual

2. Background information
    a. Summary of information and conclusions from the technical issue research reports
        1) Historically, a **prescriptive** approach has been used to protect public health when using on-site wastewater systems. Prescriptive standards established specific minimum requirements for siting, designing and installing systems.
        2) A **performance-based** approach that specifies advanced pretreatment requirements (treatment standards) can replace or augment existing prescriptive codes and facilitate progressive siting and design strategies. Such an approach can provide more flexibility in the design and use of different technologies, as long as specific treatment standards are met.
        3) Most treatment standards contain three basic elements:
            a) Critical parameters of concern (e.g. fecal coliform, nitrate nitrogen, and phosphorus).
            b) Maximum allowable concentration or mass loading of the parameter(s).
            c) The point at which the allowable concentration or loading must be met.
        4) Parameters for which treatment standards are commonly set for on-site sewage systems have included fecal coliform bacteria, total suspended solids, biochemical oxygen demand, nitrogen and phosphorus.
        5) The maximum allowable concentrations of the various parameters depend on a) the available soil and site conditions, b) the sensitivity of the receiving environment, and c) a quality that may be necessary to assure other treatment components will be effective.
        6) Two primary locations at which allowable concentrations or mass loadings must be met are used – a) the point prior to release into the soil and b) at some point in the receiving environment (e.g. a property line). **The literature suggests the best approach to set treatment standards is at the point prior to release into the soil.**
        7) Treatment standards should take into account the treatment provided by physical (filtration), biological and chemical processes in the soil. Research has shown that pretreatment can be substituted for soil depth and soil permeability to obtain similar levels of wastewater treatment.

8) Systems designed to meet specific treatment standards using a risk-based analysis on a regional or site-specific level are needed. To better match risk reduction strategies to the actual receiving environmental risk factors, multiple treatment standards should be developed. Depending on the type of specific public health risks or environmental impacts, different standards can be identified to address specific environmental sensitivity.
9) Developing a treatment standard for Total Nitrogen would be beneficial in addressing the risks of pollutant delivery to sensitive water resource protection areas in the state and would help encourage the further development of reliable nitrogen reducing technologies.
10) Formal quantitative risk-based models have rarely been applied to the on-site wastewater field. Although there are currently some proposals to apply these quantitative models to on-site systems, it will take some time before this effort becomes fully developed for use.

b. A variety of information is needed to develop a design. In addition to information from an applicant and other sources, this information includes:
   1) Constituents of concern in the wastewater
      a) Biochemical oxygen demand (BOD or CBOD), total suspended solids (TSS), & fats/oils/greases (FOG).
      b) Fecal coliform
      c) Total nitrogen
      d) Total phosphorus
   2) Soil and site conditions
      a) Soil type
      b) Depth of useable soil
      c) Sensitivity of site – surface water, groundwater
      d) Horizontal setbacks, lot size

c. Design Process – decisions that must be made by the design and regulatory professionals concerning treatment:
   1) Responses to the following questions must be developed:
      a) How much treatment can be provided in the soil?
      b) How much treatment is needed by components prior to discharging into the soil?
      c) Are additional treatment levels required due to the sensitivity of the site?
   2) Generic formula #1 (adapted from work done by E. Jerry Tyler):

$$P = S + T_{ns} + Ts$$

Where: P = p**ollutant** load that must be removed
S = amount of pollutant reduced at the **source**
T_{ns} = **treatment** provided in **non-soil** components
T_s = **treatment** provided in original, undisturbed **soil**

The amount of a particular pollutant load (**P**) that should be removed may vary depending on the sensitivity of a site. **P** can represent CBOD, TSS, fecal coliform, total nitrogen, or any other parameter which may be part of a performance requirement (standard).

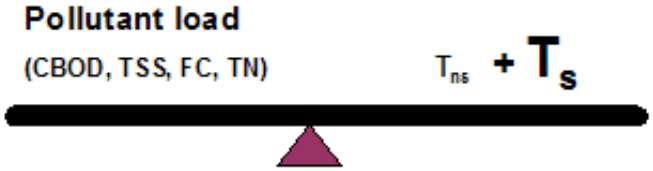
3) Generic formula #2 – assumes no reduction in parameter at the source

$$P = T_{ns} + T_s$$

Where: P = Pollutant load that must be removed
T_{ns} = Treatment provided in non-soil components
T_s = Treatment provided in original, undisturbed soil

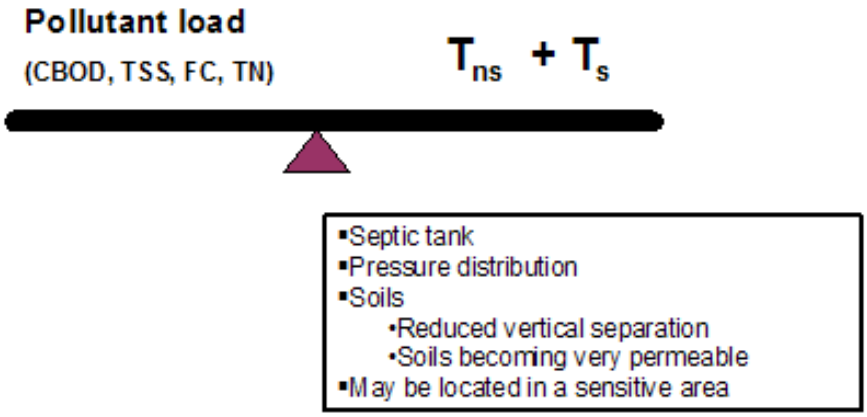
4) In order to remove pollutant concentrations to desired level, there must be a balance between what treatment the soil can provide and what treatment is required prior to discharge to the soil.

a) If the soil will provide good treatment and the system is not in a sensitive area – a simple system may be used (e.g. septic tank & gravity flow drainfield):

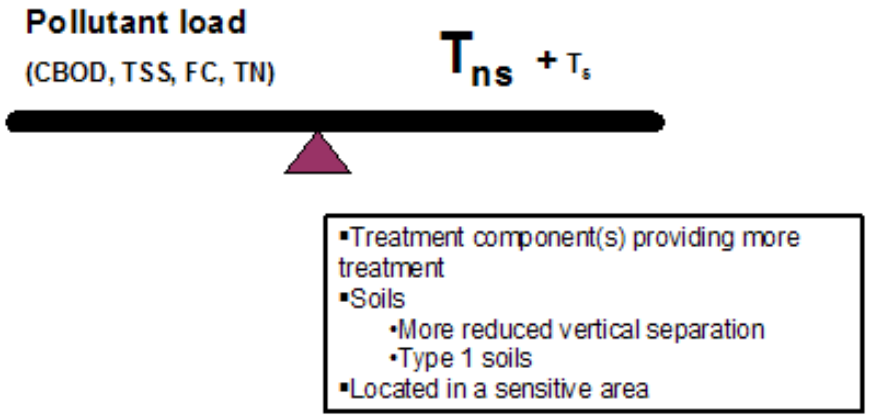


- Septic tank
- Good treatment in soil for gravity drainfield
  - Vertical separation is ok
  - Not too permeable
- Not located in a sensitive area

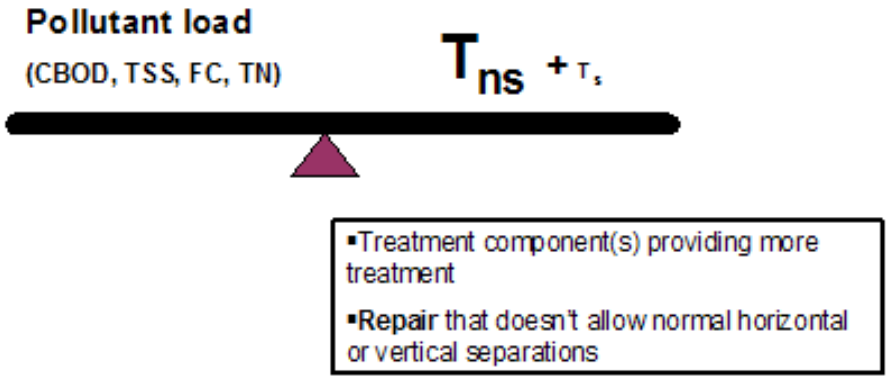
b) Soil may still provide good treatment, but may have less depth, be very permeable, and/or be located in a sensitive area – components must provide higher level of treatment (e.g. septic tank with pressure distribution):



c) The soil may have a further reduced depth, be type 1 soils, and/or be located in a sensitive area – non-soil components must provide higher levels of treatment (e.g. sand filters, aerobic treatment units, disinfection):



d) For a **repair**, where normally required vertical and/or horizontal separations are not attainable – depending on soils and site sensitivity, non-soil components must provide higher levels of treatment:



d. What's being done elsewhere?

1) The 2002 USEPA Onsite Manual offers for the first time information on performance standards. See the table below.

On-site System Treatment Standards Discussed in 2002 USEPA Onsite Manual

(From Hoover, 1998 as noted in 2002 USEPA Manual)

Standard	BOD_5 (mg/L)	TSS (mg/L)	PO_4-P (mg/L)	NH_4-N (mg/L)	NO_3-N (mg/L)	Total N (% removed) [a]	Fecal coliform (CFU/100 ml)
TS1- primary treatment							
TS1u – unfiltered	300	300	15	80	NA	NA	10,000,000
TS1f- filtered	200	80	15	80	NA	NA	10,000,000
TS2-secondary treatment	30	30	15	10	NA	NA	50,000
TS3 – tertiary treatment	10	10	15	10	NA	NA	10,000
TS4 – nutrient reduction							
TS4n nitrogen reduction	10	10	15	5	NA	50%	10,000
TS4p phosphorus reduction	10	10	2	10	NA	25%	10,000
TS4np- N & P reduction	10	10	2	5	NA	50%	10,000
TS5 – bodily contact disinfection	10	10	15	10	NA	25%	200
TS6- wastewater reuse	5	5	15	5	NA	50%	14
TS7- near drinking water	5	5	1	5	10	75%	<1[b]

NA = Not Available

a. **Minimum % reduction of total nitrogen (as nitrate-nitrogen plus ammonium-nitrogen) concentration in the raw treated wastewater**

b. Total coliform colony densities <50/100 ml

2) Several states and regions in states have implemented performance standards. The table on the top of the next page, excerpted from the technical issue report, summarizes the information looked at from other states.

Effluent Treatment Standards Prior to Discharge to Soil
(Adapted after Nelson, 2000)

State/Community	BOD Mg/l	TSS mg/l	Total N mg/l	No_3 mg/l	TP mg/l	Fecals MPN/100ml	FOG Mg/l
Washington State							
TS 1	<10	<10				<200	
TS 2	<10	<10				<800	
Florida							
Secondary treatment	≤20	≤20				≤200	
Advanced secondary treatment	≤10	≤10	≤20		≤10	≤200	
AWT	≤5	≤5	≤3		≤1	≤25	
La Pine, Oregon	≤10	≤10	≤10			≤100	
Block Island, Rhode Island							
T2N	≤30	≤30	≤19				
T2C	≤10	≤10				≤1000	
Albuquerque/Bernalillo County, NM							
Conventional System (Class 1)	≤150	≤60				$\leq 10^6$	
Secondary Systems (Class 2)	≤30	≤30				$\leq 10^4$	
Tertiary Systems (Class 3)	≤30	≤30				$\leq 10^3$	
Disinfection						≤200	
Canada	15	15				50,000	
Northeast Minnesota (study targets)	25	30		10		<200	
North Carolina							
Conventional Loading Rate Systems	200	75	75				30
High Loading Rate Systems	30	30	30			10,000	10

3. Current regulatory requirements in Washington State
    a. Two specific treatment standards as noted in table above.
    b. For conforming systems – Table 4 from current WAC 246-272-11501

TABLE IV

Methods Of Effluent Distribution For Soil Types And Depths

	Vertical Separation			
Soil Typ	**< 1 foot**	**≥ 1 foot to < 2 feet**	**≥ 2 feet to < 3 feet**	**≥ 3 feet**
1A	Not allowed	Pressure Distribution (see note)[1 & 2]	Pressure Distribution (see note)[1]	Pressure Distribution (see note)[1]
2A	Not allowed	Pressure Distribution (see note)[1 & 2]	Pressure Distribution	Pressure Distribution
1B - 6	Not allowed	Pressure Distribution (see note)[1 & 2]	Pressure Distribution	Gravity Distribution

1 System meeting Treatment Standard 2 required.

2 Mound systems installed where the original, undisturbed, unsaturated soil depth is between 12 and 18 inches, require pretreatment by an intermittent sand filter.

c. For repairs where conforming system cannot be installed because of insufficient vertical and/or horizontal separations – Table 6 from current WAC 246-272-16501

TABLE VI

Requirements for Repair or Replacement of Disposal Components Not Meeting Vertical and Horizontal Separations [1,2]

Vertical Separation (in feet)	Horizontal Separation (in Feet[3])		
	< 25	25 - 50	> 50 - ≤100
<1	Treatment Standard 1	Treatment Standard 1	Treatment Standard 2[4]
1-2	Treatment Standard 1	Treatment Standard 2[4]	Pressure Distribution
>2	Treatment Standard 2[4]	Pressure Distribution	Pressure Distribution

[1] The treatment standards refer to effluent quality before discharge to unsaturated, subsurface soil.

[2] The local health officer may permit ASTM C-33 sand to be used as fill to prevent direct discharge of treated effluent to groundwater, surface water, or upon the surface of the ground.

[3] The horizontal separation indicated is the distance between the disposal component and the surface water, well, or spring. If the disposal component is up-gradient of a surface water, well, or spring to be used as a potable water source, the next higher standard level of treatment shall apply unless treatment standard 1 is already being met.

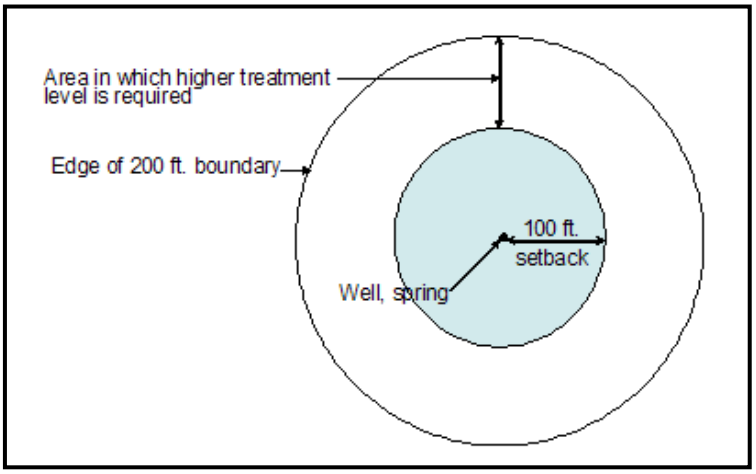
[4] Mound systems are not allowed to meet Treatment Standard 2.

4. The TRC recognized and concluded:
   a. The scientific community is increasingly promoting the use of performance standards, standards which technologies must meet in order to be installed on a given site.
   b. That a thorough site and soil assessment will provide information on the sensitivity of a site and the capacity of the soil to treat various pollutants. As soil becomes less able to provide desirable levels of treatment, a means of providing additional treatment is needed. A system's components are selected to operate in conjunction with each other to provide the level of treatment deemed necessary for a given site.
   c. It is desirable to combine items relating to treatment levels from current guidance documents with what is currently in the rule.
   d. A number of treatment levels are desirable to cover more situations adequately and to provide more flexibility by offering multiple options to property owners and design professionals.. The committee agreed that several levels are needed to adequately protect public health and environmental quality in various settings, but not so many that things become too complex and confusing.
   e. Treatment standards are currently used in Washington State. These standards were thrust upon the state by legislative action. Monitoring and maintenance

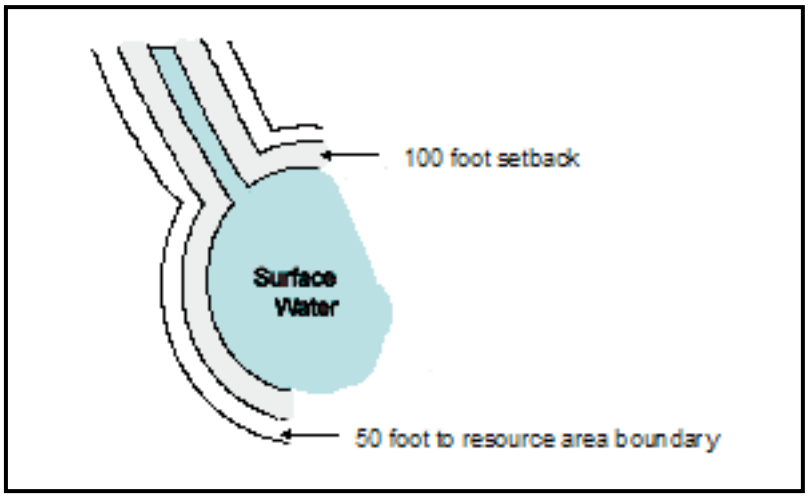
programs were not in place to facilitate the implementation of such standards. Nor did the jurisdictions have experience working with treatment standards. While they were intended to be used for setting testing standards in order to be listed for use in the state, they also were used to test compliance by having periodic grab samples collected. This created questions of whether the system was in compliance. The committee decided it was important to promote "testing" standards instead of "compliance" standards.

f. Other state and local government concluded that performance standards/treatment levels were needed to provide flexibility and options, after looking at the scientific literature. The committee believed there was good information on which to base decisions.
g. The current state of disinfection methodologies is not very positive. The TRC concluded that using disinfection that has not been tested using nationally recognized testing protocol was not currently desirable for new construction.
h. Technologies providing higher levels of treatment generally require higher levels of monitoring and maintenance. Thus, a program that can assure this was deemed important.

5. Recommendations from TRC
   a. Define "water resource areas" - inside the boundaries of these more "sensitive" areas, systems providing different levels of treatment will be used.
      1) Drinking water resource area
         a) **<u>Within</u>** a Wellhead Protection Area rated by the Department of Health as "highly susceptible"
         b) **<u>Within</u>** 200 feet of drinking water sources in "Sensitive Aquifers." "Sensitive aquifers" are delineated through a public process by local and/or state agencies and are characterized by natural features where there is significant risk of groundwater degradation from activities conducted at or near the land surface. The characteristics of sensitive aquifers include, but are not limited to, unconfined sand and gravel, glacial outwash aquifers with shallow depth to water, and other high-yielding surficial unconsolidated aquifers of regional importance with rapid recharge due to coarse sand and gravel strata that are used for drinking water. See figure at top of next page.



2) Surface water resource area - within 150 feet of the ordinary high water mark of surface water



b. Definitions

1) **Treatment Component** - Any approved technology that treats wastewater in preparation for further treatment and/or dispersal into the soil environment by the Soil Dispersal Component.
2) **Treatment Train** – Any sequence of Treatment Components that discharges treated wastewater to the Soil Dispersal Component.
3) **Non-tested disinfection** – a stand-alone disinfection product that has not been tested as part of the NSF Standard 40 protocol either 1) independently or 2) as part of a treatment train.

c. **Treatment levels – These levels reflect performance testing thresholds used for the purpose of registering technologies or products.** These levels do not reflect maximums for use in sampling existing systems as part of an on-going O&M program.

1) Table A Level	Parameters				
	$CBOD_5$ (mg/L)	TSS **(mg/L)**	FOG **(mg/L)**	FC **(#/100 ml)**	TN **(mg/L)**
A	10	10	---	200	---
B	25	30	---	1,000	---
C	25	30	---	10,000	---
D	25	30	---	---	---
E	200	80	20	---	---
N	---	---	---	---	20

Treatment Levels

Note: Values for $CBOD_5$ and TSS are 30-day averages; FC values are 30-day geometric means.

2) Notes on treatment levels:
   a) **Level A**
      i. For new construction, fecal coliform reduction must have been tested as part of the "treatment train"
      ii. For repairs, non-tested disinfection may be used
   b) **Levels B** and **C**
      i. Fecal coliform reduction must have been tested as part of the "treatment train"
      ii. Non-tested disinfection units are not permitted for either new construction or repairs.
   c) **Level D** - used solely as the threshold for reducing drainfield sizes based upon effluent quality
   d) **Level E** - represents typical septic tank effluent from a residential structure.
   e) **Level N** - may be used with any of the 5 levels, wherever nitrate is a chemical of concern.

d. There are a variety of methodologies on the current "List of Approved Systems and Products" that meet the proposed treatment levels. See **Table B** on the next page. **This table is presented to the RDC for informational purposes only. The table is neither a committee recommendation nor a topic that needs RDC action.**

Table B - List of treatment levels and systems/products meeting them

Level	Description of Systems	Examples of Systems & Products
A New Construction And Repair Sites	⊙ Proprietary products tested according to the required protocol with test results equal to or better than 10 mg/l $CBOD_5$, 10 mg/l TSS, and 200 FC / 100 ml.	⊙ Glendon ⊙ Whitewater DF-50 w/ UV, the Disinfector ⊙ TRD 1000 (original configuration)
	⊙ Public domain systems identified by DOH to have the capacity to perform under testing conditions with test results equal to or better than 10 mg/l $CBOD_5$, 10 mg/l TSS, and 200 FC / 100 ml	⊙ Stratified Sand Filter
A Repair Sites Only	⊙ Proprietary products tested according to the required protocol with test results equal to or better than 10 mg/l $CBOD_5$, 10 mg/l TSS, ***with non-tested disinfection*** to meet the fecal coliform parameter level of 200 FC / 100 ml.	⊙ AdvanTex AX20N Wastewater Treatment System ⊙ Alternating Intermittent Recirculating Reactor-AIRR ⊙ Biomax Secondary Treatment System ⊙ Biomicrobics/FAST Wastewater Treatment System ⊙ Clearwater Ecological System ⊙ Clearstream Wastewater System w/ CS1100 Spin Filter ⊙ Multi-Flo Waste Treatment System ⊙ Nayadic Residential Sewage Treatment System ⊙ Singulair Bio-Kinetic Wastewater Treatment System / 960 models ⊙ Whitewater Aerobic Treatment Unit
	⊙ Public domain systems identified by DOH to have the capacity to perform under testing conditions with test results equal to or better than 10 mg/l $CBOD_5$ and 10 mg/l TSS ***with non-tested disinfection*** to meet the fecal coliform parameter level of 200 FC / 100 ml.	⊙ Intermittent sand filters ⊙ Recirculating gravel filters
B	⊙ Proprietary products tested according to the required protocol with test results equal to or better than 25 mg/l $CBOD_5$, 30 mg/l TSS, and 1000 FC / 100 ml.	⊙ Glendon ⊙ Whitewater DF-50 w/ UV, the Disinfector ⊙ TRD 1000 (original configuration) ⊙ Products tested for all three parameters
	⊙ Public domain systems identified by DOH to have the capacity to perform under testing conditions with test results equal to or better than 25 mg/l $CBOD_5$, 30 mg/l TSS, and 1000 FC / 100 ml, without add-on disinfection.	⊙ Intermittent sand filters (sand-lined trenches & beds, open-bottom sand filters) ⊙ Mounds
C	⊙ Proprietary products tested according to the required protocol with test results equal to or better than 25 mg/l $CBOD_5$, 30 mg/l TSS, and 10,000 FC / 100 ml.	⊙ Level A & B systems tested for all three parameters
	⊙ Public domain systems identified by DOH to have the capacity to perform under testing conditions with test results equal to or better than 25 mg/l $CBOD_5$, 30 mg/l TSS, and 10,000 FC / 100 ml, without add-on disinfection.	⊙ Intermittent sand filters (sand-lined trenches & beds, open-bottom sand filters) ⊙ Mounds
D	⊙ Proprietary products tested according to the required protocol with test results equal to or better than 25 mg/l $CBOD_5$ and 30 mg/l TSS.	⊙ All Level A, B, & C systems ⊙ NSF Standard No. 40, Class I systems
	⊙ Public domain systems identified by DOH to have the capacity to perform under testing conditions with test results equal to or better than 25 mg/l $CBOD_5$ and 30 mg/l TSS.	⊙ Intermittent sand filters (sand-lined trenches & beds, open-bottom sand filters) ⊙ Mounds ⊙ Recirculating gravel filters
E	⊙ Proprietary products tested according to the required protocol with test results equal to or better than 200 mg/l $CBOD_5$, 80 mg/l TSS, and 20 mg/l FOG (typical residential septic tank effluent).	⊙ All Level A, B, C & D systems ⊙ Category 2 & 3 Treatment Systems (designed to treat high-strength wastewater to at least residential septic tank effluent levels).
	⊙ Public domain systems identified by DOH to have the capacity to perform under testing conditions with test results equal to or better than 200 mg/l $CBOD_5$, 80 mg/l TSS, and 20 mg/l FOG (typical residential septic tank effluent).	⊙ Septic tanks meeting DOH Design & Construction Standards for septic tanks.

e. Requirements **outside** water resource areas

1) **Table C** – Treatment levels

Treatment Level Required				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18" **1**	B **2**	B **2**	B **2**	C **3**
≥18" <24" **1**	B **2**	C **3**	C **3**	C **3**
≥24" <36"	B **2**	C **4**	C (gravity-flow drainfield allowed) **5** or E (pressure-flow drainfield required)	C (gravity-flow drainfield allowed) **5** or E (pressure-flow drainfield required)
≥36" < 60" **6**	B **2**	E	E	E
≥60" **6**	C **3**	E	E	E

2) **Table D** – Distribution requirements in final treatment and dispersal component

Distribution Method Required in Final Treatment & Dispersal Component				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18"	Pressure	Pressure	Pressure	Pressure
≥18" <24"	Pressure	Pressure	Pressure	Pressure
≥24" <36"	Pressure	Pressure	Gravity Allowed with Pre-Treatment System Level C **5** **or** Pressure required with Pre-Treatment Level E	Gravity Allowed with Pre-Treatment System Level C **5** **or** Pressure required with Pre-Treatment Level E
≥36" < 60" **6**	Pressure	Pressure	Gravity Allowed	Gravity Allowed
≥60" **6**	Pressure	Gravity Allowed **7**	Gravity Allowed	Gravity Allowed
Pressure means: pressure distribution with timed-dosing required (If timed dosing to a treatment component will in turn provided timed-dosing to the final treatment & dispersal component, timed-dosing is not required for the final treatment & dispersal component)				

3) **Changes from current requirements (See numbers in tables above)**

General - PD with timed-dosing is more stringent than just the PD currently required

1 – Current category of ≥ 1 foot to <2 feet, has been split into two categories: ≥12" <18", ≥18" <24"
2 – Somewhat less stringent - moving from TS2 to a less stringent Pre-treatment System Level B, but PD with timed-dosing
3 – Somewhat less stringent - moving from TS2 to a less stringent Pre-treatment System Level C, but PD with timed-dosing
4 – More stringent - moving from septic tank effluent (STE) with PD to Level C with PD/timed-dosing

5 – Greater flexibility allowed - presenting two options (Level C with gravity or STE with PD) for distribution method depending upon Pre-treatment System Level applied. Currently, just pressure distribution is required.
6 – Current category of ≥3 feet has been split into two categories: ≥36" < 60", ≥ 60"
7 - Less stringent - moving from PD to gravity

f. Requirements within **drinking water** resource areas

1) **Table E** – Treatment Levels

Treatment Levels Required				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18" **1**	A **2**	A **2**	A **2**	B **3**
≥18" <24" **1**	A **2**	B **3**	B **3**	B **3**
≥24" <36"	B **3**	B **4**	C **5**	C **5**
≥36 – 60"	B **3**	C **5**	E **6**	E **6**
≥60"	B **3**	E **6**	E **6**	E **6**

2) **Distribution requirements in final treatment and dispersal component** – Pressure distribution with timed-dosing (If timed dosing to a treatment component will in turn provided timed-dosing to the final treatment & dispersal component, time-dosing is not required for the drainfield/final treatment & dispersal component)**7**

3) **Changes from current requirements (See numbers in table above)**

1 - Current category of ≥ 1 foot to <2 feet, has been split into two categories: ≥12" <18", ≥18" <24"
2 - More stringent – moving from TS2 with PD to Level A (TS1) with PD/timed-dosing
3 – Somewhat less stringent – moving from TS2 to Level B, but PD/timed-dosing is required
4 - More stringent – moving from STE with PD to Level B with PD/timed-dosing
5 - More stringent – moving from STE with PD to Level C with PD/timed-dosing
6 - More stringent – moving from gravity to PD with timed-dosing
7 - More stringent – moving from PD to PD with timed-dosing

g. Requirements within **surface water** resource areas

1) **Table F** – Treatment Levels

Treatment Levels Required				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18" **1**	A **2**	B **3**	B **3**	B **3**
≥18" <24" **1**	B **3**	B **3**	C **4**	C **4**
≥24" <36"	B **3**	B **5**	C **6**	C **6**
≥36" - 60"	B **3**	E **7**	E **7**	E **7**
≥ 60"	C **4**	E **7**	E **7**	E **7**

2) **Distribution requirements in final treatment and dispersal component** – Pressure distribution with timed-dosing (If timed dosing to a treatment component will in turn provided timed-dosing to the final treatment & dispersal component, time-dosing is not required for the drainfield/final treatment & dispersal component)**8**

3) **Changes from current requirements (See numbers in table above)**

1 - Current category of ≥ 1 foot to <2 feet, has been split into two categories: ≥12" <18", ≥18" <24"
2 - More stringent – moving from TS2 with PD to Level A (TS1) with PD/timed-dosing
3 – Somewhat less stringent – moving from TS2 to Level B, but PD/timed-dosing
4 - Less stringent – moving from TS2 with PD to Level C, but with PD/timed-dosing
5 - More stringent – moving from STE with PD to Level B with PD/timed-dosing
6 - More stringent – moving from STE with PD to Level C with PD/timed-dosing
7 - More stringent – moving from gravity to PD/timed-dosing
8 - More stringent – moving from PD to PD/timed-dosing

h. Requirements for **repairs** when insufficient horizontal or vertical separations to sources of drinking water or surface water exist

1) Required pretreatment levels - **Revised Table VI**

Horizontal Separation →→→→	< 25 feet				25 < 50 feet				50 < 100 feet				> 100 feet *1*			
Vertical Separation	Soil Type *2*				Soil Type *2*				Soil Type *2*				Soil Type *2*			
	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6
< 12"	A	A	A	A	A	A	A	A	A 5	A 5	B 6	B 6	B 7	B 12	B 12	B 12
≥12" <18" 3	A	A	A	A	A 5	B 6	B 6	B 6	A 10	B 9	B 9	B 9	Conforming Systems			
≥18" <24" 3	A	A	A	A	A 5	B 6	B 6	B 6	A 10	B 8	C 8	C8				
≥24" <36" 4	A 5	B 6	B 6	B 6	B 7	C 8	C 8	C 8	B 7	C 9	C 9	C 8				
≥36" 4	A 5	B 6	B 6	B 6	B 7	C 8	C 8	C 8	B 7	C 8	E 11	E 11				

Note: In all cases where there is less than 12 inches of vertical separation in a **Water Resource Area**, Treatment Level A is required. **13**

2) **Distribution requirements in final treatment and dispersal component** – Pressure distribution with timed-dosing (If timed dosing to a treatment component will in turn provided timed-dosing to the final treatment & dispersal component, time-dosing is not required for the drainfield/final treatment & dispersal component)**11**

3) **Changes from current requirements (See numbers in table above)**

1. No specific treatment standards currently required with horizontal separations greater than 100 feet.
2. Current Table VI does not differentiate between soil types.
3. Current category of 1 foot to 2 feet, has been split into two categories: ≥12" <18", ≥18" <24"
4. Current category of >2 feet, has been split into two categories: ≥24" <36", ≥36"
5. More stringent – moving from TS 2 to Level A with PD/timed-dosing
6. Somewhat less stringent – moving from TS2 to Level B, but with PD/timed-dosing
7. Somewhat less stringent for Type 1A soils– moving from TS2 to Level B, but with PD/timed-dosing
8. More stringent – moving from STE with PD to Level C with PD/timed-dosing
9. More stringent – moving from STE with PD to Level B with PD/timed-dosing
10. More stringent – for Type 1A soils, moving from TS2 to Level A with PD/timed-dosing
11. Somewhat more stringent – moving from PD to PD/timed-dosing
12. Moving from no specific requirement except for general repair requirements to Level B with PD/timed-dosing
13. Moving from no specific requirement except for general repair requirements to Level A with PD/timed-dosing